

ABSTRACT

To provide a TM010 mode resonator device, an oscillator device, and a transmission and reception device having radiation of an electromagnetic field suppressed and a high Q.

5 A TM010 mode resonator 2 having circular resonator electrodes 2A and 2B, opposite to each other, formed on the top surface 1A and bottom surface 1B of a dielectric substrate 1, respectively, is formed. Furthermore, in the dielectric substrate 1, a plurality of through holes 3 having no electrode on the inner wall surface 3A thereof are formed along the circular resonator electrodes 2A and 2B, and an open-circuited end is formed by these through holes 3. Thus, an electromagnetic field generated in the dielectric substrate 1 is reflected totally at the
10 boundary between the through holes and the air, and radiation of the electromagnetic field can be suppressed.